Exhibit C

IN THE UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF VIRGINIA
ALEXANDRIA DIVISION

United States of America, *et al.*,

Plaintiffs,

v

Google LLC,

Defendant.

Case No. 1:23-cv-00108

HON. LEONIE H. M. BRINKEMA

EXPERT REBUTTAL REPORT OF

TIMOTHY SIMCOE, PH.D.

FEBRUARY 13, 2024

119. Several patterns emerge from Figure 7. First, the models with a one-month lag instrumental variables have the strongest "first stage" (see "First Stage F-statistic" rows).[187] Second, Sargan's test of IV validity is rejected in models with many instruments, as well as the baseline specification (i.e., sums of other exchanges' take rates and CPMs) with three-month lags. Third, in the baseline specification with one-month lags, the Hausman-Wu test cannot reject the hypothesis that the IV estimates are different from the OLS estimates at a five percent significance level, which suggests that much of the take-rate endogeneity concern is addressed through my use of exchange fixed effects. Based on these IV diagnostics, the baseline model in my Initial Report is a reasonable choice of specification.

120. As discussed above, it is useful to look at the entire distribution of robustness results, instead of cherry-picking the outliers. As such, Appendix Figure 8 presents a histogram of 216 variations of my Event Study regression, including all combinations of alternative instrumental variables, event study window, and time trend controls. The black line illustrates the location of my baseline/preferred estimate. My benchmark but-for take rate estimate is in the modal but-for take rate section of the distribution. It is somewhat below the outlier results that Prof. Chevalier cites in her discussion of robustness, but higher than many estimates produced by different combinations of assumptions (and in that sense, conservative). Notably, no single alternative specification yields a but-for take rate above 18 percent.

VII. Conclusion

121. The opinions presented in this report are based on the documents and data that I have reviewed to date. I reserve the right to supplement, update, or revise my opinions and analyses based on any information, documents, or data that is made available to me.

[187] The F-statistics measure the ability of the instrumental variables in my model to predict an exchange's take rate. The high value of the F-statistics indicates that one-month lagged take rates are a strong predictor of an exchanges' current-month take rate, and confirms the validity of my choice of instrumental variable.

Timothy Simcoe, Ph.D.

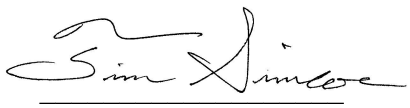
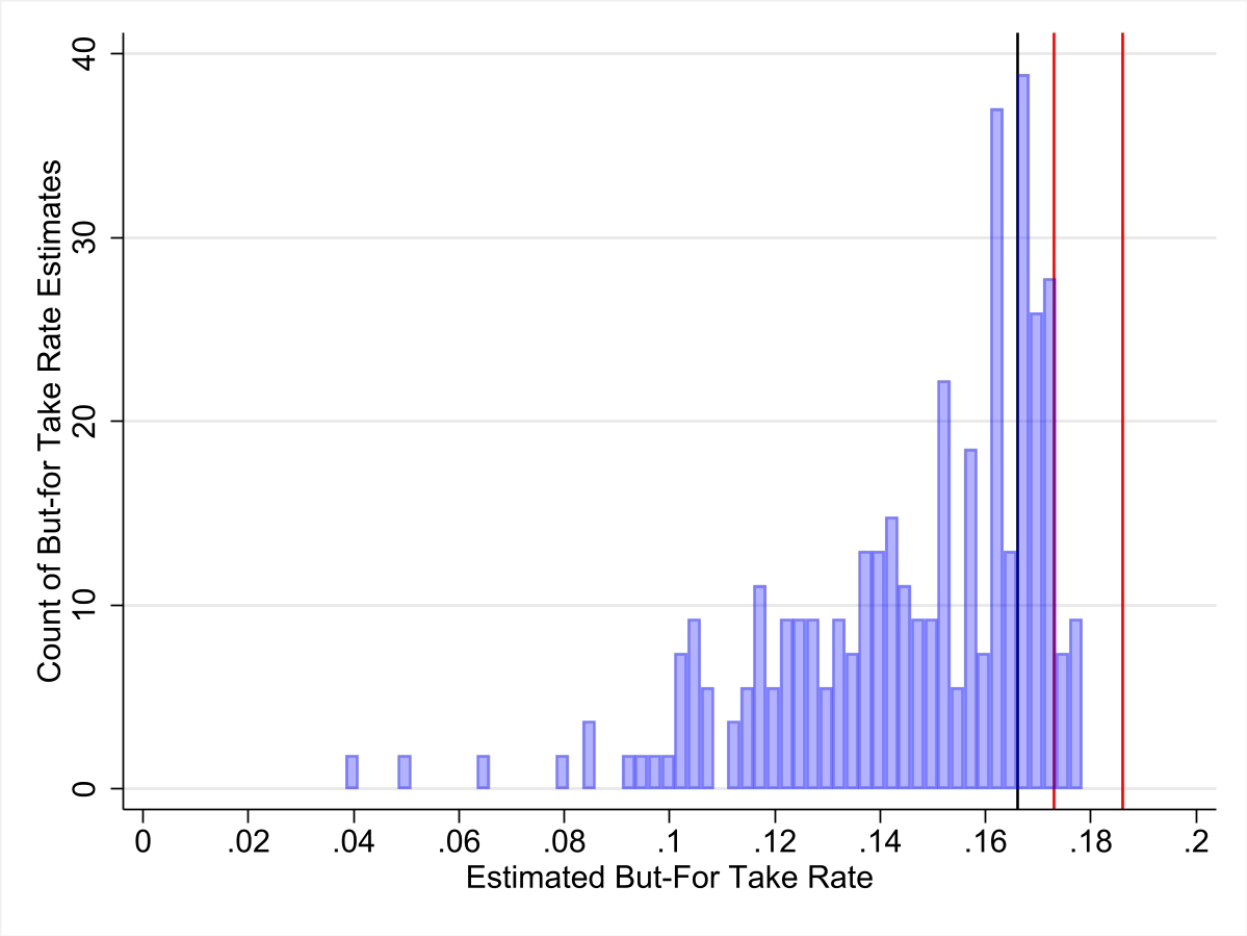


FIGURE 8: HISTOGRAM OF BUT-FOR TAKE RATE ESTIMATES FROM 216 COMBINATIONS OF EVENT STUDY SPECIFICATION ALTERATIONS



Source: Brattle analysis of aggregate exchange-level panel. *See* Simcoe Event Study Figures Workpaper.

Notes: Black vertical line is 16.6% event study but-for take rate estimate from Simcoe Initial Report, Figure 16. Red vertical lines are the 17.3% but-for take rate estimate applied by Prof. Chevalier to damages and the 18.6% take rate Prof. Chevalier reports as the "Annual Max of Large Competing Exchanges."[189] Bin widths are 0.25 percentage points. Figure includes but-for take rates estimated across 216 modifications of the benchmark event study regression. The specifications estimated include 144 IV regressions and 72 OLS regressions. The IV regressions include all combinations of four sets of instrumental variables, three instrumental variable lags, three sets of event study windows, two sets of exchanges included, and two sets of time controls. The OLS regressions include all combinations of six samples in which the sets of IVs and their lags are available, three sets of event study windows, two sets of exchanges included, and two sets of time controls. The four sets of instrumental variables include the sums of lagged other exchange take rates and CPMs, the sum of lagged other exchange take rates, all other exchanges' lagged

[189] *See* Chevalier Report, Section V.A.3.e., ¶ 128; *see also*, Chevalier Report, Exhibit 17.

take rates, and all other exchanges' lagged take rates and CPMs. The instrumental variable lags include 1-, 2-, and 3-month lags. The event study windows include October 2018 through March 2021, October 2018 through September 2021, and October 2018 through March 2022. The sets of exchanges include the "All FAA Exchange" group of AdX, Index Exchange, Magnite/Rubicon, OpenX, Pubmatic, Sovrn, Xandr, and YieldMo, as well as the "Large Exchange" group of AdX, Index Exchange, Magnite/Rubicon, OpenX, Pubmatic, and Xandr. The two sets of time controls are monthly fixed effects and a combination of monthly fixed effects, a linear time control, and an AdX-specific linear time control.

FIGURE 9: EVENT STUDY REGRESSION RESULTS WITH LOG OF CPM AS CONTROL VARIABLE

Variables	(1) **OLS**	(2) **IV**	(3) **OLS**	(4) **IV**
			Outcome Variable: Log of Impressions	
[A]	[B]	[C]	[D]	[E]
Google X Implementation Quarter (2019Q4)	0.0612	0.0700	0.125	0.180
	[0.0879]	[0.0914]	[0.0840]	[0.127]
Google X Long Run (2020Q1-2021Q3)	0.182***	0.195***	0.234***	0.306**
	[0.0523]	[0.0629]	[0.0547]	[0.131]
Take Rate	-5.393***	-6.119***	-6.234***	-5.968***
	[0.608]	[0.958]	[0.720]	[1.994]
Ln(CPM)	-0.0436	0.00631	-0.0589	0.259
	[0.0885]	[0.194]	[0.138]	[0.546]
Constant	27.77***	28.15***	27.93***	28.06***
	[0.135]	[0.202]	[0.155]	[0.443]
But-For Take Rate	16.4%	16.6%	16.0%	14.7%
But-For Take Rate SE	[0.0107]	[0.0134]	[0.0108]	[0.0379]
Sample Period	Oct 2018-Sept 2021	Oct 2018-Sept 2021	Oct 2018-Sept 2021	Oct 2018-Sept 2021
Observations	284	284	212	212
R-squared	0.993	0.993	0.991	0.991
Third Parties Included	All	All	Large	Large
First Stage F for Take Rate		174.7		125.2
First Stage F for Ln(CPM)		52.34		34.89
Wu-Hausman p-value		0.132		0.227

Source: Brattle analysis of aggregate exchange-level panel. *See* Simcoe Event Study Figures Workpaper.

Notes: Standard errors in brackets. *** p< 0.01, ** p<0.05, * p<0.1.

[A]: Estimated but-for take rates and standard errors all produced from benchmark event study regression specification, *see* Simcoe Initial Report, Section IV.A.2, with addition of logarithm of CPM as control variable. The outcome variable is the logarithm of WW monthly exchange impressions. Month and exchange fixed effects are included in al. The monthly take rate for each group is calculated as the total net revenue divided by the total gross revenue for the included impressions in that month. Calculations performed across all in-market geographies, including unknown and missing geographies. Ln(CPM) is the log of cost per "mille" and is calculated as the log of the gross revenue per 1,000 impressions in each exchange-month. Instruments for both take rate and log of CPM are sums of one-month lagged take rates and CPMs of other exchanges.